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Job number	:	038
Date	:	Jun-01 03:35pm
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Document pages	:	014
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DATE: June 1, 2004

TO: USPTO

ATTN: EXAMINER T. Ghebretinsae

RE: Serial No. 09/834,135

FAX :   (703) 872-9306

FROM: George C. Pappas

Number of Pages Sent: 14 (including this transmittal cover sheet)

ATTACHED HERETO IS AN AMENDMNET TRANSMITTAL FORM IN (1) PAGE; AND AN AMENDMENT IN (10) PAGES, PETITION FOR REVIVAL IN (2) PAGES. PLEASE CALL ME IF YOU HAVE ANY QUESTIONS.

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Darla D. Kasmedo
(Name of the Person Making the Deposit)

(Signature)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of)	Date of Notice of
)	Allowance: n/a
Richard Chi, et al.)	
)	Batch No.: n/a
Serial No.: 09/834,135)	
)	Examiner: Temesghen Ghebretinsae
Filed: April 12, 2001)	
)	Group Art Unit: 2631
For: METHOD AND APPARATUS)	
FOR DETECTING MESSAGES)	
WITH UNKNOWN SIGNALING)	
CHARACTERISTICS)	

PETITION FOR REVIVAL OF AN APPLICATION FOR PATENT ABANDONED UNINTENTIONALLY UNDER 37 CFR 1.137(b))

Mail Stop Petition
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

1. This application became abandoned on <u>November 6, 2003</u>.
2. This petition is filed:
   - ☒ within one year of the date of abandonment.
   - ☐ within three months of the date of the first decision on a petition to revive under 37 CFR 1.137(a) which was filed within one year of the date of abandonment.
     - ☐ the three month period has been extended up to (Type Date).
     - ☒ enclosed is a petition and fee for extension of the three month period to 11/6/03.

CERTIFICATE OF MAILING/TRANSMISSION (37 CFR 1.8(a))

I hereby certify that this correspondence is, on the date shown below, being:

MAILING	*FACSIMILE*
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Depositor's Name: _____ *(type or print name)*	Depositor's Name: <u>Darla D. Kasmedo</u> *(type or print name)*
Date: <u>6/1/04</u>	Signature: _____

3.   This application became abandoned unintentional.

4.   Proposed response:

☐ has been filed.
☒ is attached.
☐ The response is the filing of a continuation application having an express abandonment conditioned on the granting of a filing date to the continuing application copending with this application.

5.   Fee (37 CFR 1.17(m))

Application status is:

☐ small entity – fee $650.00.
   ☐ Verified Statement attached.
   ☐ Verified Statement filed.
☒ other than small entity – fee $1,330.00.

6.   Payment of fee:

☒ Please charge Deposit Account No. 17-0026 of QUALCOMM Incorporated in the amount of $1,330.00.
   The Commissioner is hereby authorized to charge payment of any additional fees which may be required, or credit any overpayment, to said Deposit Account No. 17-0026. A duplicate of this sheet is enclosed.
☒ The Commissioner is further hereby authorized to charge to said Deposit Account No. 17-0026, pursuant 37 CFR 1.25(b), any fee whatsoever which may become properly due or payable, as set forth in 37 CFR 1.16 to 37 CFR 1.18 inclusive, for the entire pendency of this application without specific additional authorization.

The undersigned declares further that all statements made herein are of his or her own knowledge are true and that statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Respectfully submitted,

Dated: 6/1/04   By: _____
                                         George C. Pappas, Reg. No. 35,065
                                         (858) 651-1306

QUALCOMM Incorporated
Attn: Patent Department
5775 Morehouse Drive
San Diego, California 92121-1714

2

AMENDMENT TRANSMITTAL FORM

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Customer No.: 23696
Attorney Docket No.: 010140
In Re Application of: Richard Chi, et al.
Serial Number: 09/834,135
Filed: 4/12/01
Examiner: T, Ghebretinsae
Group Art Unit: 2631

Dear Sir:

Transmitted herewith for filing is a Response to Office Action in the above identified application.

CLAIMS	(a) Number Remaining After Amendment	(b) Highest Number Previously Paid For	(c) Extra Claims	Large Entity Fee	Fee Paid
Total*	29	24	0	x $18 =	$0
Independent**	9	4	5	x $86 =	$430
Multiple Dependent Claim(s): ☐ Yes ☒ No				$290	$
EXTENSION FEES		☐ One Month		$110	$
		☐ Two Months		$420	$
		☒ Three Months		$950	$950
TERMINAL DISCLAIMER				$110	$
*If the number in column a is less than 20, enter 0 in column c. **If the number in column a is less than 3, enter 0 in column c.				TOTAL FEE	$1380

4. ☐ Fee check in the amount of $_____ is enclosed to pay for any claim and/or extension fees.

5. ☒ Please charge Deposit Account No. 17-0026 of QUALCOMM Incorporated the amount of $1380.
The Commissioner is hereby authorized to charge payment of any additional fees which may be required, or credit any overpayment to said Deposit Account No. 17-0026. A duplicate of this sheet is enclosed for fee processing.

6. ☒ The Commissioner is further hereby authorized to charge to said Deposit Account No. 17-0026, pursuant to 37 CFR 1.25(b), any fee whatsoever which may become properly due or payable, as set forth in 37 CFR 1.16 to 37 CFR 1.18 inclusive, for the entire pendency of this application without specific additional authorization.

Date: 6/1/04

Signature:

George C. Pappas, Reg. No. 35,065
(858) 651-1306

QUALCOMM Incorporated
Attn: Patent Department
5775 Morehouse Drive
San Diego, California 92121-1714
Telephone: (858) 658-5787
Facsimile: (858) 658-2502

CERTIFICATE OF MAILING/TRANSMISSION (37 CFR 1.8(a))

I hereby certify that this correspondence is, on the date shown below, being:

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☐ deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.
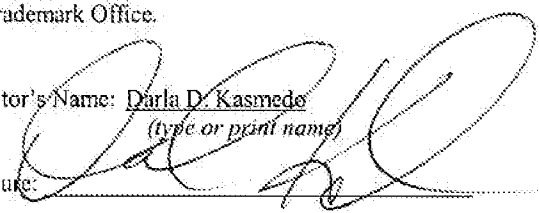
Depositor's Name: _____
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Date: 6/1/04

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☒ transmitted by facsimile to the Patent and Trademark Office.

Depositor's Name: Darla D. Kasmedo
(type or print name)

Signature:

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of)

)

Richard Chi, et al.)

)

)

)

Serial No. 09/834,135)

)

Filed: April 12, 2001)

For: **METHOD AND APPARATUS FOR DETECTING MESSAGES WITH UNKNOWN SIGNALING CHARACTERISTICS**

Group No. 2631

AMENDMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Applicant through his attorney respectfully requests that the statutory period for response to the outstanding Office Action **May 6, 2003**, due **August 6, 2003**, be extended three (3) months under 37 CFR § 1.136(a) to **November 6, 2003**. Please charge Deposit Account No. 17 - 0026 of QUALCOMM Incorporated in the amount of $950 to pay the necessary fee due under 37 CFR § 1.17 to extend the period for response three-months. The Commissioner is hereby further authorized to charge payment of any additional fees which may be required, or credit any overpayment, to Deposit Account No. 17 - 0026. A duplicate of this sheet is enclosed.

CERTIFICATE OF MAILING/TRANSMISSION (37 CFR 1.8(a))

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Depositor's Name: _____ *(type or print name)*	Depositor's Name: Darla D. Kasmedo *(type or print name)* Signature:
Date: 6/1/04	

1

IN THE CLAIMS

Please amend the claims as follows:

1.   Deleted.

2.   (Amended)   [The method of claim 1,] A method of minimizing probability of error for decoding messages of unequal lengths and unequal *a posteriori* probability for blind transport format detection (BTFD), comprising:

receiving an incoming stream characterized by a preselected transport format;

computing a metric for each possible transport format of the incoming stream, including the preselected format; and

determining the preselected transport format based on a best one of the computed metrics,

wherein the metric is a function of:

$$\frac{\left(\sqrt{\alpha_s \hat{E}_s \alpha_p \hat{E}_p}\right)}{\beta(\alpha_s \hat{N}_t \alpha_p \hat{E}_p)} E_{VD}(n_c) - \frac{n_c\left(\sqrt{\alpha_s \hat{E}_s \alpha_p \hat{E}_p}\right)^2}{2\alpha_s \hat{N}_t \alpha_p \hat{E}_p} - n_m \ln(2) \quad ,$$

where

$\alpha_s \hat{E}_s$ is an estimated energy of a signal component per symbol in the incoming stream,

$\alpha_p \hat{E}_p$ is an estimated energy of a pilot component per symbol in the incoming stream,

$\alpha_s \hat{N}_t$ is an estimated noise variance per symbol in the incoming stream,

n_m is a length of a message corresponding to the transport format under consideration,

n_c is a length of a codeword corresponding to the transport format under consideration, and

2

$E_{VD}(n_c)$ is an energy computed by a Viterbi decoder for a hypothesized codeword of length n_c.

3.   (Original) The method of claim 2, wherein the BTFD is in a CDMA system.

4.   (Original) The method of claim 3, wherein the CDMA system is a W-CDMA system.

5.   Deleted.

6.   Deleted.

7.   Deleted.

8.   Deleted.

9.   (Amended)   [The method of claim 8,]   A method for decoding messages in which at least one signaling characteristic of the messages is not known *a priori*, the method comprising:

receiving a sequence for a transmitted message;

computing a metric value for each of a plurality of hypothesized messages corresponding to a plurality of hypotheses for the at least one unknown signaling characteristic of the transmitted message, wherein the metric value is computed based on a metric derived to approximately maximize a joint *a posteriori* probability between the received sequence and the hypothesized messages; and

selecting a hypothesized message having a best metric value as the transmitted message,

wherein the at least one unknown signaling characteristic relates to a transport format for the transmitted message.

10.   (Original) The method of claim 9, wherein the transport format identifies a particular length for the transmitted message selected from among a plurality of possible message lengths.

11.   (Amended)   The method of claim [8] 9, wherein the at least one unknown signaling characteristic further relates to a rate of the transmitted message.

12.   (Original) The method of claim 11, wherein the transmitted message has a particular rate selected from among a plurality of possible rates.

13.   (Original) The method of claim 12, wherein plurality of possible rates include full, half, quarter, and eight rates.

14.   (Amended)   The method of claim [8] 9, wherein the metric is derived based on a particular signaling scheme used to map the transmitted message to the sequence.

15.   (Amended)   [The method of claim 8,] A method for decoding messages in which at least one signaling characteristic of the messages is not known *a priori*, the method comprising:

receiving a sequence for a transmitted message;

computing a metric value for each of a plurality of hypothesized messages corresponding to a plurality of hypotheses for the at least one unknown signaling characteristic of the transmitted message, wherein the metric value is computed based on a metric derived to approximately maximize a joint *a posteriori* probability between the received sequence and the hypothesized messages; and

selecting a hypothesized message having a best metric value as the transmitted message,

wherein the metric is expressed as:

$$metric = \left(\frac{1}{\sigma^2} \sum_{i=1}^{n_c} x_i y_i \right) - \left(\frac{n_c V^2}{2\sigma^2} \right) - n_m \ln(2) \quad ,$$

4

where

m is the hypothesized message being evaluated,

$\underline{y}$ is the received sequence,

n_m is a length of the hypothesized message being evaluated,

n_c is a length of a codeword corresponding to the hypothesized message being evaluated,

V is a magnitude of a transmitted sequence corresponding to the received sequence, and

σ^2 is a variance of noise in a channel via which the received sequence was transmitted.

16. (Amended)   [The method of claim 8,] A method for decoding messages in which at least one signaling characteristic of the messages is not known *a priori*, the method comprising:

receiving a sequence for a transmitted message;

computing a metric value for each of a plurality of hypothesized messages corresponding to a plurality of hypotheses for the at least one unknown signaling characteristic of the transmitted message, wherein the metric value is computed based on a metric derived to approximately maximize a joint *a posteriori* probability between the received sequence and the hypothesized messages; and

selecting a hypothesized message having a best metric value as the transmitted message,

wherein the metric is expressed as:

$$\text{metric} = \left(\frac{1}{\sigma^2} \sum_{i=1}^{N_C} x_i y_i \right) - \left(\frac{N_C R V^2}{2\sigma^2} \right) - n_m \ln(2) \quad ,$$

where

m is the hypothesized message being evaluated,

$\underline{y}$ is the received sequence,

n_m is a length of the hypothesized message being evaluated,

5

N_C is a length of a codeword corresponding to the hypothesized message being evaluated,

$\sqrt{RV}$ is a magnitude of a transmitted sequence corresponding to the received sequence, and

σ^2 is a variance of noise in a channel via which the received sequence was transmitted.

17. (Amended) [The method of claim 8,] A method for decoding messages in which at least one signaling characteristic of the messages is not known _a priori_, the method comprising:

receiving a sequence for a transmitted message;

computing a metric value for each of a plurality of hypothesized messages corresponding to a plurality of hypotheses for the at least one unknown signaling characteristic of the transmitted message, wherein the metric value is computed based on a metric derived to approximately maximize a joint _a posteriori_ probability between the received sequence and the hypothesized messages; and

selecting a hypothesized message having a best metric value as the transmitted message,

wherein the metric is expressed as:

$$\text{metric} = f_1(E_{VD}) - f_2(E_C) - f_3(n_m) \ ,$$

where

E_{VD} is an energy related to a correlation between the received sequence and a sequence generated by re-encoding the hypothesized message being evaluated,

E_C is an energy related to a transmitted sequence corresponding to the received sequence,

n_m is a length of the hypothesized message being evaluated, and

$f_1(), f_2(),$ and $f_3()$ represent functions of an argument within the parenthesis.

6

18.   (Amended)   The method of claim [8] 9, wherein the metric includes a first term indicative of an energy between the received sequence and a sequence corresponding to the hypothesized message being evaluated.

19.   (Original) The method of claim 18, wherein the first term is derived by a Viterbi decoder used to decode for each hypothesized message.

20.   (Original) The method of claim 18, wherein the metric includes a second term having a variable for each unknown signaling characteristic.

21.   (Original) The method of claim 20, wherein the metric includes a second term having a variable for a length of a code sequence corresponding to the hypothesized message being evaluated.

22.   (Original) The method of claim 20, wherein the metric includes a second term having a variable for a rate of the hypothesized message being evaluated.

23.   (Original) The method of claim 20, wherein the metric includes a third term having a variable corresponding to a length of the hypothesized message being evaluated.

24.   (Amended)   [The method of claim 8,] A method for decoding messages in which at least one signaling characteristic of the messages is not known a priori, the method comprising:

receiving a sequence for a transmitted message;

computing a metric value for each of a plurality of hypothesized messages corresponding to a plurality of hypotheses for the at least one unknown signaling characteristic of the transmitted message, wherein the metric value is computed based on a metric derived to approximately maximize a joint a posteriori probability between the received sequence and the hypothesized messages; and

selecting a hypothesized message having a best metric value as the transmitted message,

wherein the metric includes a variable for a signal amplitude of a transmitted sequence corresponding to the received sequence.

7

25.   (Amended)   [The method of claim 8,] A method for decoding messages in which at least one signaling characteristic of the messages is not known *a priori*, the method comprising:

receiving a sequence for a transmitted message;

computing a metric value for each of a plurality of hypothesized messages corresponding to a plurality of hypotheses for the at least one unknown signaling characteristic of the transmitted message, wherein the metric value is computed based on a metric derived to approximately maximize a joint *a posteriori* probability between the received sequence and the hypothesized messages; and

selecting a hypothesized message having a best metric value as the transmitted message,

wherein the metric includes a variable for a variance of noise included in the received sequence.

26.   Deleted.

27.   (Amended)   The receiver unit of claim [26] 28, wherein the decoder is a Viterbi decoder.

28.   (Amended)   [The method of claim 26,] A method for decoding messages in which at least one signaling characteristic of the messages is not known *a priori*, the method comprising:

receiving a sequence for a transmitted message;

computing a metric value for each of a plurality of hypothesized messages corresponding to a plurality of hypotheses for the at least one unknown signaling characteristic of the transmitted message, wherein the metric value is computed based on a metric derived to approximately maximize a joint *a posteriori* probability between the received sequence and the hypothesized messages; and

selecting a hypothesized message having a best metric value as the transmitted message,

wherein the demodulator includes:

8

a pilot processor configured to receive and process the input samples to provide pilot symbols,

a data processor configured to receive and process the input samples to provide data symbols, and

a coherent demodulator coupled to the pilot and data processors and configured to coherently demodulate the data symbols with the pilot symbols to provide the received sequence of symbols.

29. (Amended) [The method of claim 26,] A method for decoding messages in which at least one signaling characteristic of the messages is not known *a priori*, the method comprising:

receiving a sequence for a transmitted message;

computing a metric value for each of a plurality of hypothesized messages corresponding to a plurality of hypotheses for the at least one unknown signaling characteristic of the transmitted message, wherein the metric value is computed based on a metric derived to approximately maximize a joint *a posteriori* probability between the received sequence and the hypothesized messages; and

selecting a hypothesized message having a best metric value as the transmitted message.

further comprising:

a signal and noise estimator coupled to the demodulator and configured to estimate signal amplitude of symbols in a transmitted sequence corresponding to the received sequence and to further estimate noise variance in the received sequence.

30. (Newly added) The receiver unit of claim 28, wherein the decoder is a Viterbi decoder.

9

REMARKS

Applicant thanks the Examiner for the indication of allowable subject matter.

Claims 1, 5-8 and 26 have been cancelled without prejudice.

Each of the independent claims now remaining correspond to one or more originally presented dependent claims indicated as being in allowable form. The independent claims and all claims dependent therefrom should now also be allowed form as rewritten.
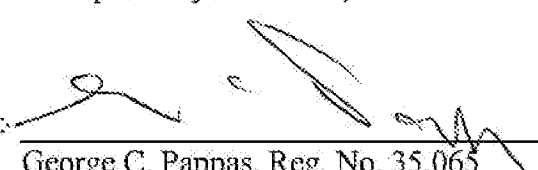
This case should now be in condition for allowance.

In light of the foregoing, the Examiner's reconsideration of this application with a view toward allowance is respectfully requested. The Examiner is invited to call the undersigned agent if a telephone call could help solve any remaining items.

Please charge any fees or overpayments that may be due with this response to Deposit Account No. 17-0026.

Respectfully submitted,

Dated: 6/1/04

By:

George C. Pappas, Reg. No. 35,065
858-651-1306

QUALCOMM Incorporated
Attn: Patent Department
5775 Morehouse Drive
San Diego, California 92121-1714
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Facsimile: (858) 658-2502

10